DOCUMENT RESUME

ED 232 403 EC 160 003

AUTHOR Hardee, W. Paul
TITLE Communicatively Inhibiting Behaviors of Mothers with Language Disordered Children.
PUB DATE Apr 83
NOTE 27p.; Paper presented at the Southern Speech Communication Association Convention (Orlando, FL, April 6-9, 1983).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Interaction; *Language Acquisition; *Language Handicaps; *Mothers; Semantics; Syntax; *Verbal Communication; Young Children

ABSTRACT

Four mothers and their language handicapped children (2-4 years old) were compared with four mothers and their normal language children. Mother-child interactions were tape recorded and analyzed for semantic, syntactic, and morphologic complexity. The normal language group had more sophisticated semantic, syntactic, and morphologic abilities than their language disordered counterparts. Mothers of language disordered Ss simplified their speech to their children compared to the speech directed at normal age peers and adults. They also tended to dominate and direct conversation more and to be more tutorial than mothers of the normal language group. Although it was concluded that no definitive relationship between mothers' language model and interaction patterns and their child's language growth had been established, some mothers could benefit from a formal language training program. (CL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED232403

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

RECEIV
APR

Communicatively Inhibiting Behaviors of Mothers with Language Disordered Children

W. Paul Hardee
Department of Special Education
Southwest Texas State University
San Marcos, Texas 78666

A paper presented to the
Southern Speech Communication
Association annual conference,
Orlando, Florida, April 6-9, 1983.

EC 160003

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
W. Paul Hardee
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A key research and training issue in the field of language pathology has become the nature and role of early language interactions between mothers and their children. While it was thought two decades ago that the language model presented to a language-learning child in natural interactions was too error-plagued to provide an adequate model for learning, the last decade has been characterized by a shift from this notion (Clark and Clark, 1977). Research has demonstrated that the language and social interaction strategies employed with young language-learning children differ substantially and systematically from the patterns employed in adult to adult interactions and interactions with older children (Brown, 1977). These differences result in simplification, reduced length, and increased salience of the language model presented to children (Clark and Clark, 1977), a finding which has been verified in many studies (Brown, 1977).

Current research focuses on which of these strategies appear to have an affect on children's language growth and whether mothers vary in their interactional patterns. This paper will attempt to delineate a few language interaction adjustments which mothers make and which appear to have a positive effect on language acquisition and will assess the degree to which mothers of language disordered children differ from mothers of normally developing children. I will then consider some language modeling and language interaction strategies that may inhibit the acquisition of language in the language disordered child and discuss the notion of using mothers with language-disordered children as formal language instructors of their children.

The speech directed to 1½-to2 year olds has been shown to contain shorter sentences, pauses at sentence boundaries more often than within sentences, and is slower and more redundant than the speech directed to 3½-to 4-year-olds and adults (Broen, 1972). Motherese, as it has been called (Newport, Gleitman, and Gleitman, 1977), is also more restricted than adult to adult speech in vocabulary used, and is syntactically simpler, more limited in the types of

sentences employed, and almost always grammatically correct and free of interjections, hesitations, and reformulations (Broen, 1972; Brown, 1977; Snow, 1977; Newport, Gleitman, and Gleitman, 1977).

Several studies have focused on pragmatic aspects of parent-child interactions, as well as grammatical features, particularly with a focus on determining which interaction patterns might be facilitative of language development. Newport, Gleitman, and Gleitman (1977) denied that Motherese is syntactically simpler or more restricted than adult to adult speech with the exception that embeddings and conjunctions are rarer (Newport, Gleitman, and Gleitman, 1977, p. 122). They felt that Motherese is not a "syntax-teaching language" but a language geared to reducing the processing contraints on a "linguistically-primitive" child by reducing sentence length (Newport, Gleitman, and Gleitman, 1977). These authors did find, however, that certain interaction patterns were correlated with specific language growth in children. Specifically, they found that 1) verbal auxiliary growth in the children was strongly and positively correlated (r=.88) with the mother's tendency to use the auxiliary in utterance-initial position of yes-no questions, 2) use of deixis (such as There is a ball) was positively correlated (r=.62) with vocabulary growth, and 3) use of expansion of the children's utterances was positively correlated (r=.79) with vocabulary growth (Newport, Gleitman, and Gleitman, 1977 -- Conversely, they found that maternal self-repetition was negatively correlated (r=0.69) with vocabulary growth,) and 3) use of expansion of the children's utterances was positibely correlated (r=.79) with vocabulary growth (Newport, Gleitman, and Gleitman, 1977).

Other features characterizing the interactions of mothers with their young language-learning children have been noted and positive effects on language growth of the child have been conjectured though not substantiated. Some of these features include:

1) Mothers asking questions to pass the conversational turn to the child but answering the question themselves when no answer was forthcoming.

2) Mothers maintaining an almost one-to-one ratio of mother to child utterances, reflecting the turn-taking nature of their interactions.

3) Mothers responding to truth value of an utterance rather than correcting grammatical mistakes (Bryen, 1982, p. 169).

The nature of mothers interactions with their language-disordered children has only recently received attention (Lasky and Klopp, 1982; Russo and Owens, 1982), and little is known. This study was a descriptive study undertaken with the intention of determining:

1) Does the speech of mothers to their language-disordered children appear to be like that of mothers to

   a) chronologically younger but linguistically comparable children?

or

   b) children of the same chronological age?

or

   c) a mixture of both?

and

2) Do mothers of language-disordered children employ the language models and language interaction patterns that appear to facilitate or inhibit language growth in normal children?

METHOD

Eight mother-child dyads were observed; four in which the children were developing language normally and four in which the children exhibited a delay in the development of langauge. The Language Disordered group children and their mothers were chosen on the basis of these criteria;

a) age between 2-0 and 4-0;

b) exhibited delay in the acquisition of language;

c) absence of sensory, motor or cognitive disorder accounting for language disorder and absence of minority dialect or bilingualism;

d) presence in the home of a mother as the primary caretaker and primary linguistic model; and

e) availability of the mother for experimental sessions.

The normal language group was chosen on the basis of approximate chronological age match (within four months).

- - - - - - - - -

Table 1 here

- - - - - - - - -

Table 1 reports the ages and comparative language scores of the two groups of children. The Normal Language group children had PPVT scores on the somewhat high end of the scale, indicating higher verbal ability than average. By design, the Language Disordered group children scored toward the low end of language skills assessed. MLU scores placed Subject A in Late State 1 of Brown's Stages of Grammatical Development, Subject C in Brown's Stage II, Subject D in Brown's Stage III, and Subject B in early Stage IV (Miller, 1981).

- - - - - - - - -

Table 2 here

- - - - - - - - -

Table 2 contrasts the two groups of children on grammatical stage and indicates the predicted range of chronological ages (within one standard deviation of the mean) of children with comparable MLU's. Notice that, with the exception of subject B, the Language Disordered group children used language typically used by the 21-24 month old child, the age at which Motherese features are most prominent. Subject B was a child whose standardized test scores placed her lower than her MLU and whose language was probably

a bit too sophisticated to be comparable to the other three Disordered group children. Her mother's interaction patterns were not unlike that of the other mothers in the Disordered group and the data were not discarded. The Normal group children ranged from average to precocious on language skills. Notice that their level of grammatical development is generally like that of a 3½-to 4-year-old child.

PROCEDURE

Mother-child interactions were recorded on a high-fidelity audio tape recorder (Akai GX747) during play situations. In addition, the experimenter made relevant notes about the non-verbal actions and contextual clues observed during dyadic interactions (e.g. nonverbal reinforcements or instances of physical prohibition of an action by a mother) to aid in interpretation of audio tapes. The experimenter was primarily interested in the language modeled, however, and direct interactions occurring through oral language rather than nonverbal interactions.

Each mother-child dyad was observed during two twenty minute play sessions. A set of toys and a picture book were provided as an impetus for speech. The mothers were instructed to interact in a play situation as they might do in their own homes. They were also instructed to look at and talk about the picture book with their child at some point during the session.

Complete whole-word transcriptions of the forty minutes of play for each dyad were coordinated with the experimenter's notes and used as the source for language analysis.

The children's language samples were analyzed for semantic complexity via a Type-Token ratio (TTR - number of different words used as a ratio of total number of words used), and for syntactic and morphologic complexity via a Mean Length of Utterance (MLU), and by cataloging the occurrence of a specific set of syntactic transformations (see Appendix A for list).

These same measures were applied to the speech of the mothers along with

the following measures:

1) Sentence classification of utterances (imperative, kernel sentence, transformed sentence, sentence fragment)

2) Verbal reinforcements - expansions, semantic extensions or expatiations, repetitions, and corrections.

The author transcribed and analyzed all language samples. Fifty utterances were randomly chosen one month after original transcription and analysis to assess intrajudge reliability. Reliability was high for transcription agreement (r=.98) and analysis agreement (r=.96).

RESULTS

Initially, analyses were undertaken of the speech of the children in the eight dyads. As can be seen in Table 3, the Normal Language group had more sophisticated semantic, syntactic, and morphologic abilities than their Language Disordered counterparts.

- - - - - - - - -

Table 3 here

- - - - - - - - -

In particular, the Language Disordered children used significantly fewer transformations per utterance (by referring to the appendix, note that these transformations range from simple use of articles or pronouns to formation of wh-questions).

Table 4 reports these same measures for the mothers in the two groups of dyads. It also reports the mean scores from a case study by Cramblit and Siegel (1977) of the speech directed to one language disordered child whose MLU was 1.34 and to one normal language child whose MLU was 5.54.

- - - - - - - - -

Table 4 here

- - - - - - - - -

It is obvious that mothers of Language Disordered children were semantically

and grammatically simplifying their speech to their children when compared to the speech directed to their normal age peers and speech directed to adults. The simplirications were in relative agreement with those found in the Cramblit and Siegel (1977) study. Notice, however, that Mother A used a range of vocabulary similar to that of mothers of normal children dispite the fact that her child manifested the second most limited vocabulary range in the study (Child A had a TTR=0.41). Notice also that Mother D had the longest MLU (7.0) and the most transformations per utterance (5.17) in the study despite that her child's language was less sophisticated than five of the eight children.

- - - - - - - - -

Table 5 here

- - - - - - - - -

Besides these overall patterns, the experimenter looked at some specific patterns that have been suggested in the literature to aid or inhibit communication and language growth. This list of mothers language interactions and modifications in Table 5 and Table 6 is limited as this study was intended to be an exploratory/ descriptive study.

- - - - - - - -

Table 6 here

- - - - - - - - -

As a group, the mothers of the Language Disordered children had over twice as many utterances as their children while the mothers of the Normal language children had approximately the same number of utterances as their children. Appendix B illustrates one of the more extreme cases of this differences between the mothers. Notice that Mother H attempts to include her child in the picture book story while Mother D, whose child is language disordered dominates the conservation.

- - - - - - - - -

Table 7 here

- - - - - - - - -

Evident in Table 7 is the fact that two mothers of Language Disordered children spent some of the interaction time directly correcting pronunciation or grammatical structure. Correction of this type did not occur among the mothers of the Normal Language children and is extremely rare among mothers of normally developing children (Brown, 1973).

Mother D also used the most complex speech of all the mothers in the study despite the fact that her child had less sophisticated language than five of the eight children. Many of her utterances (as seen in Appendix B) contained relative and subordinate clauses and combined two or more propositions.

Mother C, Whose child was language disordered, spent almost two thirds of the interaction time with her child asking questions. Most of the questions were not answered as can be seen in Appendix C. This mother also corrected her child more frequently than any other mother.

DISCUSSION

On the whole, the mothers of the Language Disordered children responded in much the same way as mothers do to their normally developing younger children. They simplified their vocabulary, gave many verbal reinforcements (including a greater number of grammatical expansions), and reduced the length of their sentences. They did not, in many cases, reduce the syntactic complexity of their speech, though it appeared to be particular mothers whose patterns most varied from expected simplifications. Pragmatically, the mothers of Language Disordered children tended to dominate and direct conversation to a far greater degree than did the mothers of the Normal Language group children. More often than their counterparts with normally developing children, these mothers attempted to be tutorial by correcting their children's speech though these corrections were a relatively small percentage of the overall interactions and primarily attributable to two mothers.

It appeared that the mothers of the Language Disordered children were responding to their children in complex ways. They apparently recognized their

children's vocabulary and processing limitations, probably indicating, as Newport, Gleitman, and Gleitman (1977) said, that these mothers' "...language style arises primarily in response to the pressures of communicating with a congitively and linguistically naive child in the here and now..." (Newport, Gleitman, and Gleitman, 1977, p. 124). Unlike the mothers in the Newport et al (1977) study, the mothers of the Language Disordered children appeared to be responding to the mixed messages of child whose language is as naive as that of a 21-to24-month old but whose other cognitive skills are more advanced. It is not surprising that a mixture of simplification and complexity occurs and that vocabulary and sentence length are more likely to be adjusted than syntactic complexity. On a pragmatic level, the mothers of the language disordered children appeared to be attempting to maintain conversation with their linguistically poor and terse partners either by asking many questions or filling in silent gaps with an increase in the number of their utterances. Again, this is not a surprising adjustment. It must be noted that the characteristics indicated above were most prominent in the interaction patterns of two mothers. In no way is it suggested that the results of this study can be generalized to all mothers with language disordered children. Nevertheless, at least in the case of some mothers of language disordered children, the quality of the language interaction with the child bears some observation. The language clinician attempts to present a simplified, systematic language model (especially grammatically) to a child in a remedial setting. It is not surprising that mothers who have not had the benefit of formal instruction in language do not accomplish this simplification, at least on a grammatical level. Perhaps more importantly, at least two of these mothers placed pragmatic constraints, in particular presenting a distorted discourse model without an appropriate amount of turn-taking, to their language disordered children. Hubbell (1977) has noted that "...conditions of constraint...elicited talking from children of lesser quality and breadth than did conditions of non-constraint" (Hubbell, 1977, p.219). To Hubbell (1977) constraints included questions and commands and involved a

mothers imposing her own ideas and expectations on the child, a limiting factor in the development of speech.

It must be stated that no definitive relationship between mothers' language model and interaction patterns and their child's language growth has been established. In no way does this study imply a causal relationship between a mother's language and her child's language delay. However, despite the mere suggestion in most cases of relationships between interaction patterns and language growth, the nature of an individual mother's interaction pattern with her language disordered child should be investigated. At some clinics, mothers are formally included in the language training programs for their child but in many others they are not. It seems apparent that in some cases, these mothers and their children could benefit from a formal training program though obviously not all mothers need formal language training. Future research will have to clarify the relationship between interaction patterns and language growth before formal parent training programs will become standard in all language training programs.

REFERENCES

Beckwith, Leila. Relationships between infants vocalizations and their mothers' behaviors, Merrill-Palmer Quarterly, 17, 211-225 (1971).

Broen, Patricia. The Verbal Environment of the Language Learning Child, Washington, D.C.: American Speech and Hearing Association Monograph no. 17 (1972).

Brown, Roger. A First Language. Cambridge, Mass.: Harvard University Press (1973).

Brown, Roger. Introduction In Catherine Snow and Charles Ferguson (Eds.), Talking to Children: Language Input and Acquisition, London: Cambridge University Press (1977).

Bryen, Diane. Inquiries into Child Language, Boston: Allyn and Bacon (1982).

Carrow, Elizabeth. Carrow Elicited Inventory, Austin, Texas: Learning Concepts (1974).

Cazden, Courtney. Child Language and Education, New York: Holt, Rhinehart, and Winston, Inc. (1972).

Clark, Herbert and Eve Clark. Psychology and Language, New York: Harcourt, Brace, Jovanovich, Inc. (1977).

Cramblit, Nancy and Gerald Siegel. The verbal environment of a language impaired child, Journal of Speech and Hearing Disorders, 42, 474-482 (1977).

Dunn, Lloyd. The Peabody Picture Vocabulary Test, Circle Pines, Minnesota: American Guidance Service, Inc. (1965).

Hubbell, Robert. On facilitating spontanious talking in young children, Journal of Speech and Hearing Disorders, 42, 216-231 (1977).

Lasky, Elaine and Kathleen Klopp. Parent-child interactions in normal and language-disordered children, Journal of Speech and Hearing Disorders, 47, 7-18 (1982).

Lee, Laura. Northwestern Syntax Screening Test. Evanston, Illinois: Northwestern University (1974).

Miller, Jon. Assessing Language Production in Children, Baltimore: University Park Press (1981).

Morehead, Donald and David Ingram. The development of base syntax in normal and linguistically deviant children, Journal of Speech and Hearing Research, 16, 330-352 (1973).

Nelson, Katherine. Structure and strategy in learning to talk, Monographs of the Society for Research in Child Development, 38, Serial no. 149 (1973).

Newport, Elisa, Henry Gleitman, and Lila Gleitman. Mother, I'd rather do it myself: some effects and non-effects of maternal speech style, In Catherine Snow and Charles Ferguson (Eds.) Talking to Children: Language Input and Acquisition, London: Cambridge University Press (1977).

Russo, Jo-Ann and Robert Owens. The development of an objective observation tool for parent-child interaction, Journal of Speech and Hearing Disorders, 47, 165-173 (1982).

Snow, Catherine. Mother's speech research: from input to interaction, In Catherine Snow and Charles Ferguson (Eds.), Talking to Children: Language Input and Acquisition, London: Cambridge University Press (1977).

TABLE 1. A COMPARISON OF AGE AND LANGUAGE SCORES OF THE LANGUAGE DISORDERED AND NORMAL LANGUAGE CHILDREN;

PPVT = PEABODY PICTURE VOCABULARY TEST

MLU = MEAN LENGTH OF UTTERANCE

CELI = CARROW ELICITED INVENTORY

SUBJECT	AGE (MONTHS)	PPVT	MLU	CELI (PERCENTILE)
LANGUAGE DISORDERED GROUP				
A	30	90	1.8	1ST
B	32	97	3.3	9TH
C	35	105	2.3	5TH
D	47	86	2.7	3RD
MEAN	36	94	2.5	5TH
NORMAL LANGUAGE GROUP				
E	30	145	4.4	90TH
F	38	109	4.6	45TH
G	39	121	4.4	75TH
H	44	111	4.5	50TH
MEAN	38	121	4.5	65TH

TABLE 2. MLU SCORES, STAGE OF GRAMMATICAL DEVELOPMENT, AND PREDICTED CHRONOLOGICAL AGE FOR COMPARABLE MLU'S (SCALES TAKEN FROM MILLER, 1981).

LANGUAGE DISORDERED GROUP

SUBJECT	MLU	STAGE	PREDICTED AGE (MONTHS)
A	1.8	LATE STAGE I	21-24
B	3.3	EARLY STAGE IV	33-39
C	2.3	STAGE II	24-27
D	2.7	STAGE III	24-30

NORMAL LANGUAGE GROUP

E	4.4	LATE STAGE V	39-57
F	4.6	LATE STAGE V	39-57
G	4.4	LATE STAGE V	39-57
H	4.5	LATE STAGE V	39-57

TABLE 3. MEASURES OF SEMANTIC (TTR) AND SYNTACTIC (MLU AND TR/UTT) COMPLEXITY OF THE CHILDREN'S SPEECH;

TTR = TYPE/TOKEN RATIO

MLU = MEAN LENGTH OF UTTERANCE

TR/UTT = NO. OF SYNTACTIC TRANSFORMATIONS PER UTTERANCE

LANGUAGE DISORDERED GROUP

MEASURE	A	B	C	D	GROUP MEAN
TTR	0.41	0.49	0.36	0.55	0.45
MLU	1.8	3.3	2.3	2.7	2.5
TR/UTT	0.98	2.5	1.76	1.56	1.7

NORMAL LANGUAGE GROUP

MEASURE	E	F	G	H	GROUP MEAN
TTR	0.49	0.45	0.49	0.52	0.49
MLU	4.4	4.6	4.4	4.5	4.5
TR/UTT	3.46	3.34	3.83	3.81	3.59

TABLE 4. MEASURES OF SEMANTIC (TTR) AND SYNTACTIC (MLU AND TR/UTT) COMPLEXITY OF MOTHER'S SPEECH TO THEIR CHILDREN;

TTR = TYPE/TOKEN RATIO

MLU = MEAN LENGTH OF UTTERANCE

TR/UTT = NO. OF SYNTACTIC TRANSFORMATIONS PER UTTERANCE

MOTHERS OF LANGUAGE DISORDERED GROUP

MOTHER	TTR	MLU	TR/UTT
A	0.55	4.4	3.98
B	0.56	5.2	3.94
C	0.43	4.9	3.66
D	0.40	7.0	5.17
MEAN	0.49	5.4	4.24
CRAMBLIT & SIEGEL, 1977	0.48	3.95	--

MOTHERS OF NORMAL LANGUAGE GROUP

MOTHER	TTR	MLU	TR/UTT
E	0.55	6.1	4.87
F	0.48	5.2	3.85
G	0.54	5.0	4.10
H	0.64	5.3	4.48
MEAN	0.55	5.4	4.36
CRAMBLIT & SIEGEL, 1977	0.57	4.7	--

TABLE 5. MEASURES INDICATING LANGUAGE INTERACTION PATTERNS BETWEEN MOTHERS AND THEIR CHILDREN. PERCENTAGES REPORTED ARE PERCENTAGES OF TOTAL UTTERANCES.

VARIABLE	NORMAL LANGUAGE	DISORDERED LANGUAGE
TYPE/TOKEN RATIO	0.55	0.49
VERBAL REINFORCEMENTS (PERCENTAGE)	10.9	11.0
GRAMMATICAL EXPANSIONS (PERCENTAGE)	3.34	4.7
CORRECTIONS (PERCENTAGE)	0.00	1.24*
SENTENCE FRAGMENTS (PERCENTAGE)	18.2	14.5
MLU RATIO (MOTHER/CHILD)	1.21	2.18
MOTHER/CHILD UTTERANCE RATIO	1.14	2.30

* - MOTHERS C AND D CONTRIBUTED 95% OF CORRECTIONS

TABLE 6. PERCENTAGES OF SPECIFIC SENTENCE TYPES USED BY THE MOTHERS OF THE TWO GROUPS OF CHILDREN IN THEIR SPEECH TO THEIR CHILDREN.

SENTENCE TYPE	NORMAL LANGUAGE	DISORDERED LANGUAGE
IMPERATIVES	4.0	7.4
KERNEL	18.4	16.1
COMPLEX *	29.2	28.1
WH- QUESTIONS	13.5	13.0
YES/NO QUESTIONS WITH AUXILIARY SHIFT	20.7	23.9
YES/NO QUESTIONS WITHOUT AUXILIARY SHIFT	11.2	11.5
DEICTIC UTTERANCES	9.3	9.9

* - INVOLVES CONJUNCTION OR EMBEDDING

TABLE 7. COMPARISON TO MOTHERS OF NORMAL CHILDREN OF SOME SPECIFIC INTERACTION PATTERNS OF THE MOTHERS OF LANGUAGE DISORDERED CHILDREN WHICH MAY BE COMMUNICATIVELY INHIBITING.

NORMAL LANGUAGE GROUP	DISORDERED LANGUAGE GROUP
MOTHER/CHILD UTTERANCE RATIO = 1.14/1.0	MOTHER/CHILD UTTERANCE RATIO = 2.3/1.0
GRAMMATICAL/ PHONOLOGICAL CORRECTIONS = 0.00 %	GRAMMATICAL/ PHONOLOGICAL CORRECTIONS = MOTHER C - 2.2% MOTHER D - 1.8%
COMPLEX SENTENCES - MEAN= 29.2% (22.3%-34.6%)	COMPLEX SENTENCES - MOTHER D = 39.9%
WH- QUESTIONS- MEAN = 13.5% (6.6%-24.1%)	WH- QUESTIONS - MOTHER C = 23.8%
TOTAL QUESTIONS - MEAN = 45.4%	TOTAL QUESTIONS - MOTHER C = 63.7%

APPENDIX A

Listed below are the 37 syntactic transformations cataloged in the speech of the mothers and children in the study.

1) Pronoun segment
2) Article segment
3) Demonstrative segment
4) Preposition segment
5) Adjective gentitive placement
6) Verb particle segment
7) Type placement
8) Locative segment
9) Plural affix segment
10) Progressive affix segment
11) Copula contraction
12) Number segment
13) Wh question
14) Noun deletion
15) Progressive auxiliary segment
16) Present affix segment
17) Conjunction segment
18) Question tone
19) Infinitive segment
20) Question do segment
21) Negative do segment
22) Tag question
23) Past affix segment
24) Question copula shift
25) Complete all segment
26) Gentitive affix segment
27) Vocative segment
28) Verb deletion
29) Verb qualifier statement
30) Inchoative segment
31) Particle intensive segment

32) Question modal shift
33) Repetition segment
34) Modal contraction
35) Auxiliary negation
36) Modal negation
37) Emphatic do segment

APPENDIX B

Listed below are two examples of mother-child interactions as the dyads looked at a picture book without printed words (The Adventures of Paddy Pork by Maurice Sendak). The first interaction is between Mother D and her language disordered child. The second interaction is between Mother H and her normally developing child.

MOTHER D AND CHILD

M Want me to read you the book? Want me to read you a story? Want me to read you a story? O.K. This is the "Adventures of Paddy Pork"

C Paddy Pork.

M Paddy Pork. This looks like a good story. Whoops, first page is comin' out. Oh, my goodness. Well, it looks like he and his mother are going shopping down in the village. Do you want to come up here so you can see? O.K. Paddy Pork and his Mommy are going down to the village. Let's see, they must be going down to buy groceries, do you think? They're going to buy groceries? O.K. And ah Paddy Pork turns around and looks and he sees a circus passing on the street down here. See? It's a circus and there's an elephant. Doesn't that look exciting? An ah, I kinda think that all the time he and his mother are in the store buying groceries that he might be thinkin' about that circus. Don't you think so?

C Uh huh.

M Probably is; and wondering how he can talk his momma into taking him to the circus. O.K. So his mommy is finishing.

C Fishing.

M No, she's buying groceries and she's paying the man for it over here, see. Paddy Pork's looking out the . . .

C Door.

M Door, yeah. And the circus is still going by. All the little boys and girls are following it, see? O.K. So he runs outside. And I'm not sure, I think he's goin, they must have gone home. And then he decides to walk back down the road toward town. But he couldn't decide whether he was going to town or to the country. Cause I would say he didn't know exactly where the circus was. O.K. And somehow he must have gotten lost. Cause he's in the forest and it's dark and he's scared and he's crying. Oh look, there's a wolf there behind the tree. I don't think Paddy Prok sees him yet. Oh, now he sees him. And so the wolf stops and probably asks "Are you lost little boy?" And I bet Paddy Pork says "Yes, I don't know where I am. An it's dark and I want to go home."

MOTHER H AND CHILD

M Let's see, Adventures of Paddy Pork.

C A pig.

M Yes. You think that's Paddy Pork? There's Paddy Pork in his own room.

C He's goin' to his, he goin to his . . .

M Oh, Paddy Pork turned around and he saw sometning. Look what he saw. There's an elephant and a wagon and it's a circus.

C Uh oh.

M But his momma took him down to the store, and look he's thinkin' about the circus that's outside. He doesn't want to be at the store. So he opens the door and he looks out and look at all the children following the circus. Where's he goin'?

C He's goin', he, he went back to, to see they, to see they horses. I mean he's goin' for a walk.

M Yes, he's goin' for a walk, cause he's tryin' to find the circus, I think.

C Yeah.

M And he looks up here and here's the sign that says you can go this way, or you can go this way or you can go that way.

C What?

M He doesn't know where to go. Oh, it's getting dark. Does he know where he is? I don't think so, I think he's lost. Look at that big, bad wolf hiding behind the tree.

C He better hurry and go home and run and run away, right! Because that, there a big, bad wolf hiding behind the tree.

APPENDIX C

Listed below are two examples of mother-child interactions as the dyads played with toys. The first interaction is between Mother C and her language disordered child while the second interaction is between Mother G and her normally developing child.

MOTHER C AND CHILD

M It's startin' to fall. Better set it back up.

C Here. There.

M That's too loud.

C Here.

M Gonna get a spoon?

C No. My turn.

M Your turn? When is it my turn?

C What's that?

M When is it my turn?

C What's that?

M That's -----. When is it my turn?

C Whee!

M Do I get a spoon?

C No.

M Please. What is this?

C I want / bɪdʒ /.

M O.K.

C What's that?

M What?

C What's that?

M Hand. Can you say hand?

C No.

M What are you doing? What are you doing?

C Where they go?

M Did you hide him? Did you hide the man?

C I want see. No.

M No? There! You got it. Do you have a spoon?

C Where it go?

M Where's the spoon?

P There.

M Where's your plate?

MOTHER G AND CHILD

M Mee too. I'm hungry, are you hungry?

C He's asleep.

M Asleep?

C Wake up. I want a milkshake and a hamburger and some french fries and some "Hecklo" and some milk.

M Some what?

C I want some, a milkshake and some, and some ah, and some toast and some milk and some "Hoka loki".

M Some what?

C I want some, a milkshake and some, and some ah, and some toast and some milk and some "Hoka loki".

M What's "Hoka loki?"

C That's wine!

M Oh. You want some wine? O.K. I don't know if they have wine at McDonald's, though.

C I'm pretending.

M Alright, that's good. How much is this?

C 80-10 and 68¢.

M O.K. here you go. He's paying you.

C Thank you.

M Oh, she fell over.

C McDonald's is crazy.

M It's crazy.

C It's real crazy there. Where can the other people sit?

M They can sit in their cars if they want.

C That's driving by the window.